

smartphone learning in Peru

Moodle for mobile devices

by Inge de Waard



IMU device challenge

the Ingenious Mobile Universe device challenge
is launched!

Mobile projects at ITM

ITM has been developing several (currently six different types: QRcodes, offline data gathering, mobile courses, mobile continuing education updates, train the trainer modules, GIS) mobile solutions both for research and education.

Our challenges: emerging countries, challenging environments & tiny budgets & tiny team

Our strength: an interdisciplinary, creative team

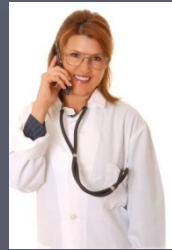
Current start-ups: mobile gis project for monitoring ticks (geolocation, real time ... fun!)
and augmented medical learning app

But top project for the moment:



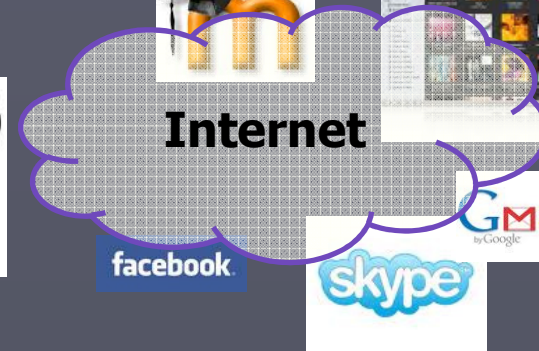
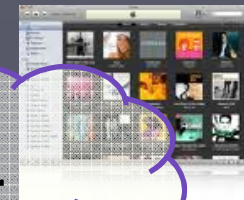
Paradigm Break

(it is not just a phone)



Classical model
sms, voice

Graphs by Ellar Llacsahuanga



New model
sms, voice, data, video, geo
in REAL TIME

Overall mLearning aims

- ▶ Durability
- ▶ Scalability
- ▶ Collaboration (local people know the local health situation best)
- ▶ Allowing user generated content
- ▶ Low cost
- ▶ Independent from, or at least flexible to infrastructure
- ▶ Generic

Aim of Peruvian mobile project

- In 2008 the Institute of Tropical Medicine Alexander von Humboldt (IMTAvH) in Lima (= the real craftsmen of this project) and the Institute of Tropical Medicine (ITM) in Antwerp set up a mobile educational platform for healthcare worker (HCW) training:
 - ✓ downloading of the latest medical information
 - ✓ knowledge sharing and data contribution

Target population and setting

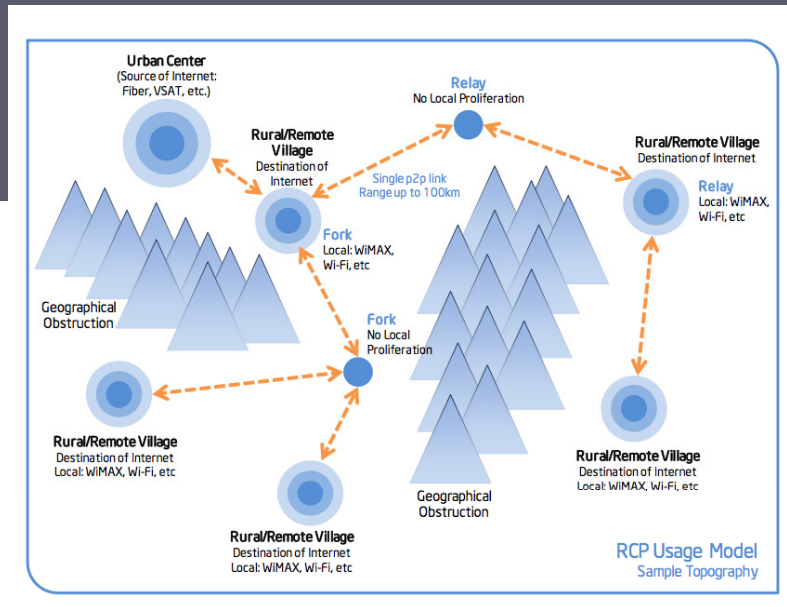
- ▶ Health care workers involved in HIV/AIDS care in Peru
- ▶ 20 Clinics in Department Capitals (urban and peripheral)
 - More than 70% of the national patients receive treatment on those selected health facilities
 - The selection was made working closely with the Ministry of Health



How to apply in low resource settings (rural area) Wifi Local Area Network



VoiP, intranet websites

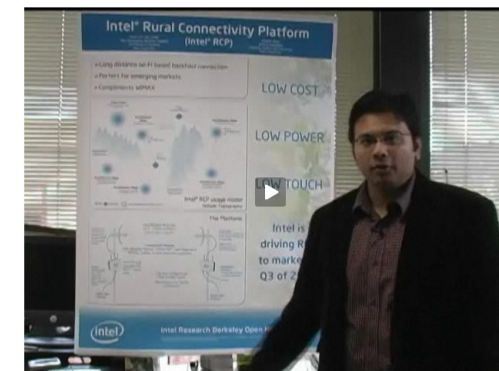


Intel (r) Rural Connectivity Platform becomes a reality

posted by Cheryl Miller on March 10, 2008

I have followed this project over the past few years as it has moved from an exploratory project in the Intel Research lab, to testing in such remote places as Vietnam, India, South Africa, Panama and...Berkeley.

The demo that was presented at the Berkeley Lab open house had two antenna transmitting video via WIFI connection. One of the antenna was on top of the Space Sciences Laboratory (SSL) at the UC Berkeley campus which is about 1.5 miles (2.4 km) away from the lab in downtown Berkeley.



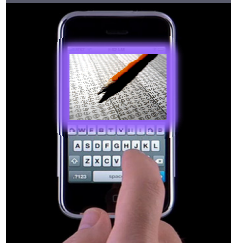
100km, a pair USD 1000

Methods

- ▶ 20 physicians used individual Smartphones (Nokia N95 and iPhone), for a CME program, Oct '09 – Jan '10
- ▶ Wifi, solar panels and wireless router to save on connection costs and increase autonomy



CLINICAL MODULE



Pre-test (day 1)

- access LCMS (MLE Moodle)
- via email
- website



Clinical Case (day 3)

- 3D movies (podcast deliver using iTunes)
- Questions related with clinical case (start discussion forum Moodle)
- Critical thinking



wifi



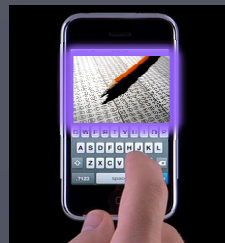
Conclusion of discussion (day 10)

- strengthening network



Summary

- Day 1: Pre-test with focus on a specific topic
- Day 3: Send Clinical cases with questions and start discussion
- Day 10: Conclusion of clinical cases
- Day 11: Summary of module (articles and review)
- Day 15: Post-test on the topic



Post-test (day 15)



Send summary material
Website link (day 11)



Tools used

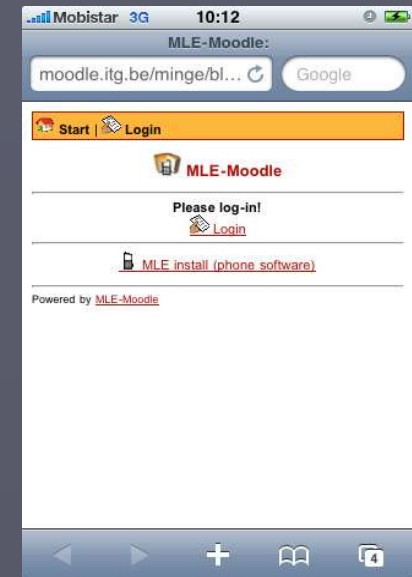


module revision was provided through multimedia files developed with ScreenFlow

Looking at examples, we used iTunes as a repository of the podcast during course:
<http://itunes.apple.com/be/podcast/central-videos-audios-reach/id332290043>

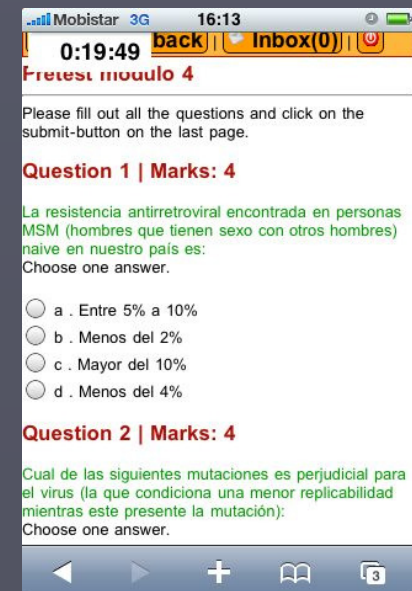
MLE Moodle

- ▶ A web-based platform (MLE Moodle), is offered to support the learning events, tracking students' progresses over time
- ▶ Why Moodle? It is based on social constructivist idea (co-construction)



Pre post test

- ▶ Baseline knowledge and learning outcomes were tested through mobile-based multiple choice questions issued at the beginning and end of each module



Results: mid-term evaluation

technical feasibility and users' satisfaction, December 2009

- ▶ 18/20 returned standardized questionnaires (response rate, 90%)
- ▶ Focus group discussion (12/20)
- ▶ Participant median age was 48.5 years (range, 34–55 years), with a median of 6 years of experience treating HIV patients

mLearning Tibotec/Reach Grant: evaluación a medio plazo

Nombre del participante: _____

Viabilidad operativa

¿Estuvieron los equipos móviles disponibles y funcionando cuando se inició el primer módulo educativo? Si ☐ No ☐

¿Estuvieron todas las aplicaciones necesarias funcionando cuando se inició el primer módulo educativo? Si ☐ No ☐

¿El equipo llegó a sus manos en buenas condiciones? Si ☐ No ☐

¿Fue la guía de estudio (manual) lo suficientemente claro? Si ☐ No ☐

¿Fue útil? Si ☐ No ☐

¿Por qué?

¿Se ha utilizado la guía de estudio (manual) en casa? Si ☐ No ☐

¿Cuál es la forma (3G, wifi) que prefirió para conectarse a Internet para descargar el contenido?

¿El acceso a Internet era adecuado en el hospital? Si ☐ No ☐

El alcance de la señal inalámbrica (describa)

	Pésima	No buena	OK	Buena	Optima
La percepción de la velocidad de conexión	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

¿Limitaciones percibidas por usted al utilizar el router inalámbrico que le dimos?

¿Era el podcast (animaciones 3D) de fácil acceso para su descarga? Si ☐ No ☐

¿Era el tema de revision (ppt con audio) de fácil acceso para su descarga? Si ☐ No ☐

¿Eran las lecturas recomendadas (pdf) de fácil acceso para su descarga? Si ☐ No ☐

¿Fueron los vínculos bien organizados de manera clara? Si ☐ No ☐

¿Cuántas veces usted ha intentado conectarse para descargar el contenido de cada módulo?

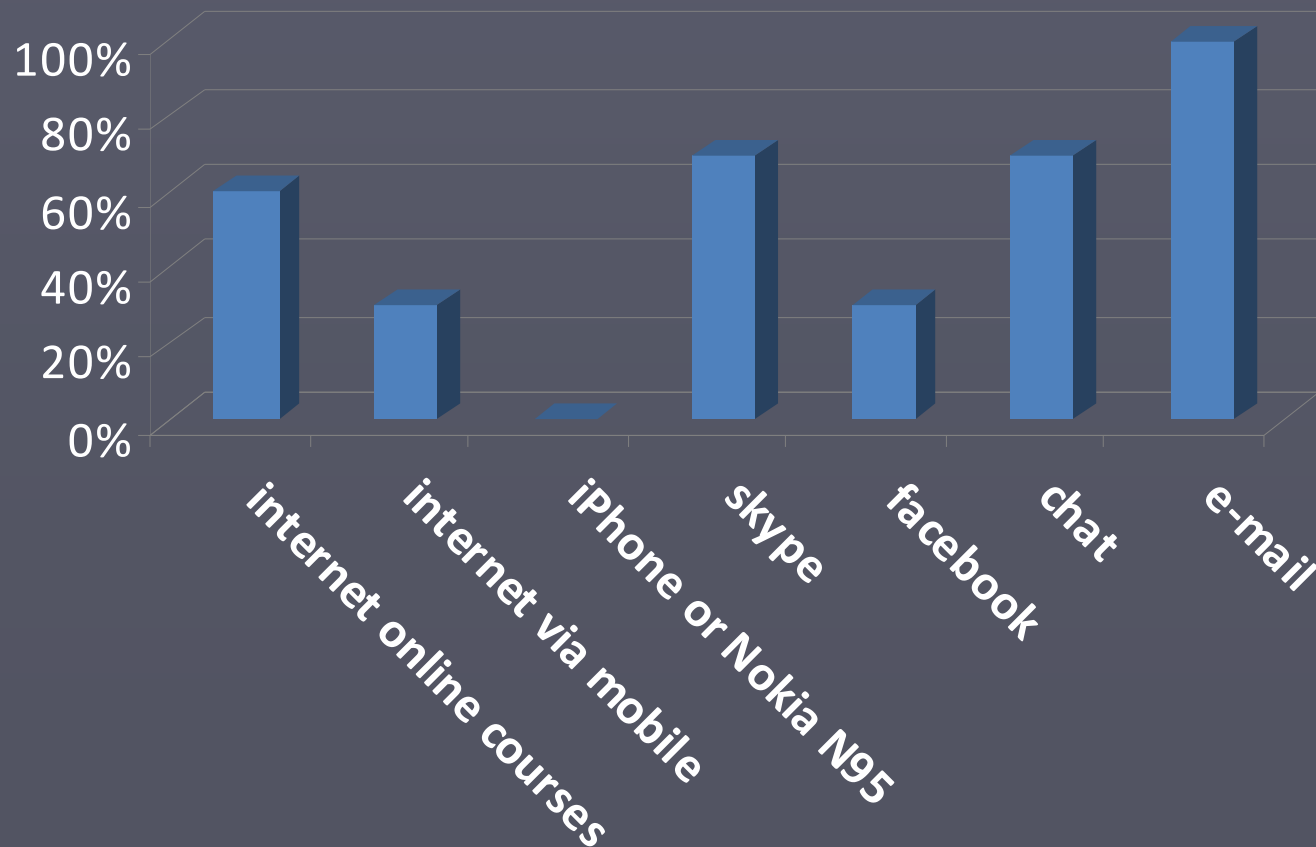
Tiempo medio para descargar el contenido

¿La conexión inalámbrica facilitó el acceso a los contenidos? Si ☐ No ☐

¿Ventajas y desventajas de ser capaz de utilizar el acceso inalámbrico en el programa educativo: el ajuste a la agenda personal? Si ☐ No ☐

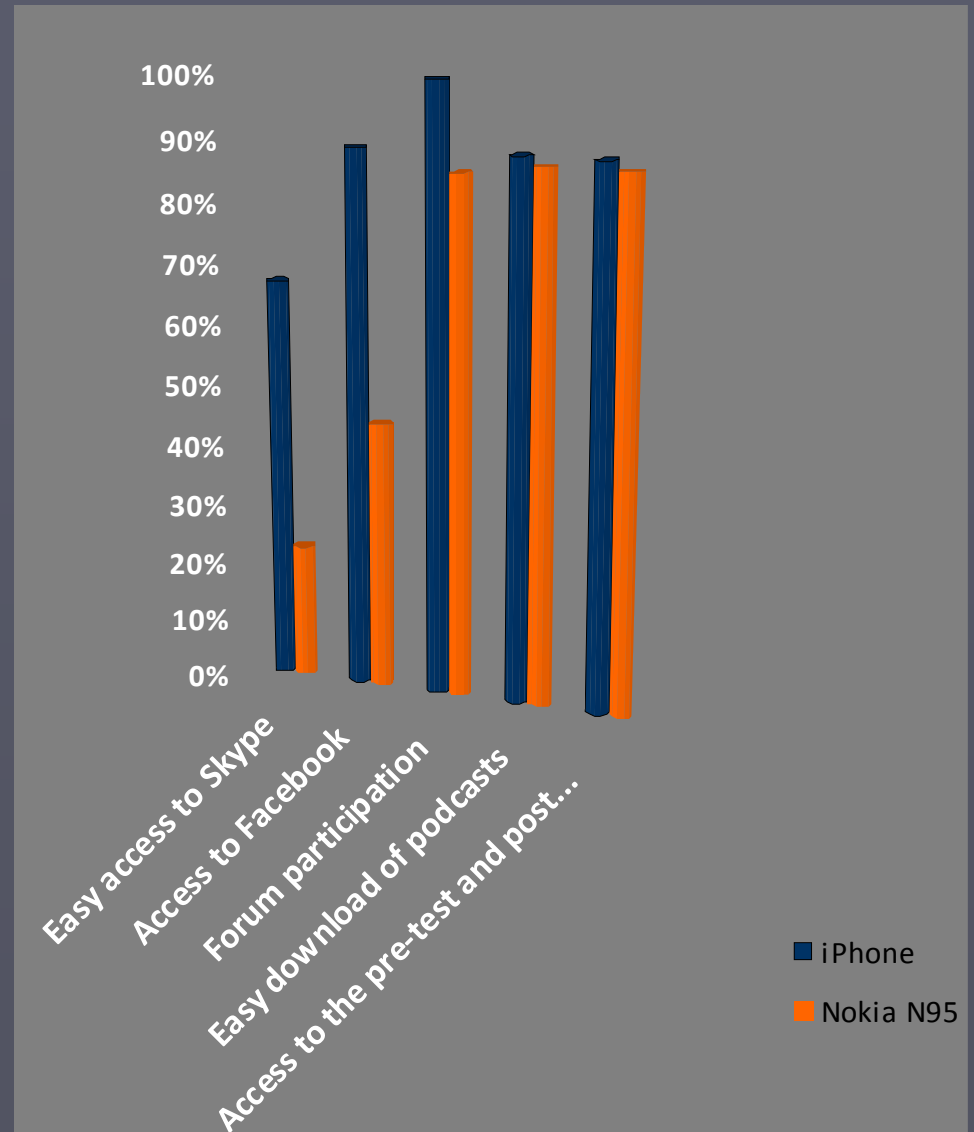
¿Acceso a los contenidos sin necesidad de tener acceso a un ordenador personal? Si ☐ No ☐

Prior mobile learning experience, and social media literacy



Questionnaire

- ▶ **66.7%** of the iPhone users indicated that Skype was easy to access vs **22.2%** using the Nokia N95
- ▶ **88.9%** of the iPhone respondents found it easy to access Facebook via mobile vs the **44.4%** using the Nokia N95



Focus group discussion

- ▶ Advantages indicated by the participants: portability of the equipment and easy access to the educational content at own space and time
- ▶ The overall satisfaction of using iPhone or Nokia N95 as expressed by the participants was generally greater for iPhone
- ▶ The Nokia N95 users described:
 - access to Skype and Facebook as being more complicated;
 - less satisfaction with the screen and the keyboard size;
 - troublesome quality of the images



Follow up

Based on the focus group and mid-term evaluation we looked at improving the MLE to improve iPhone connectivity

<http://iphone.moodle.com.au/>

(register for free and try out the demo course – Carlos Kiyan = project lead for iphone/moodle together with a LOT of volunteers)

Opening up Moodle for other Mobile Operating Systems: Android, Symbian are currently working (with hiccups)

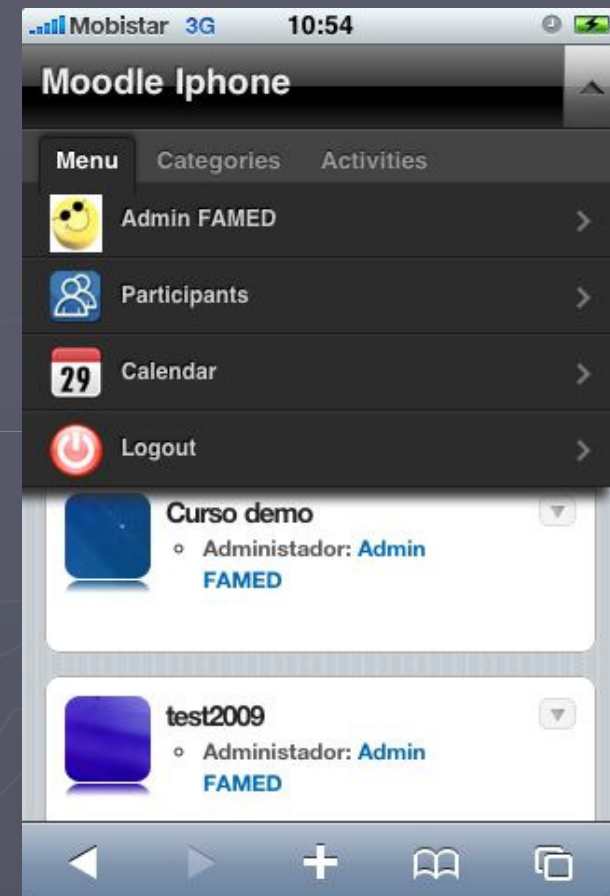
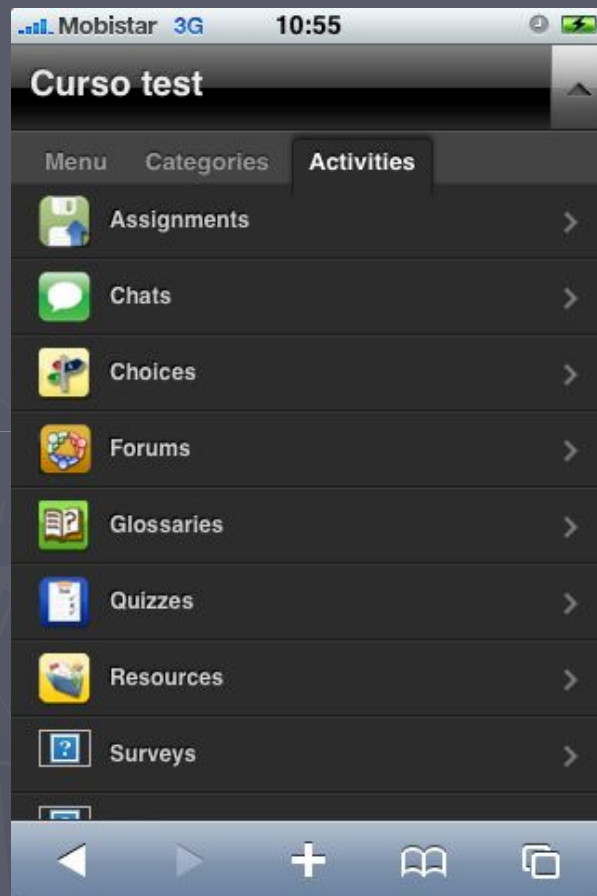
How? Moodle server side recoding (php, xml, css additions). Initially following the lego principle: what is available? can we use it to build something bigger than the individual blocks?

Current actions:

- ▶ cleaning the coding: GIT + community,
- ▶ going for native iPhone app



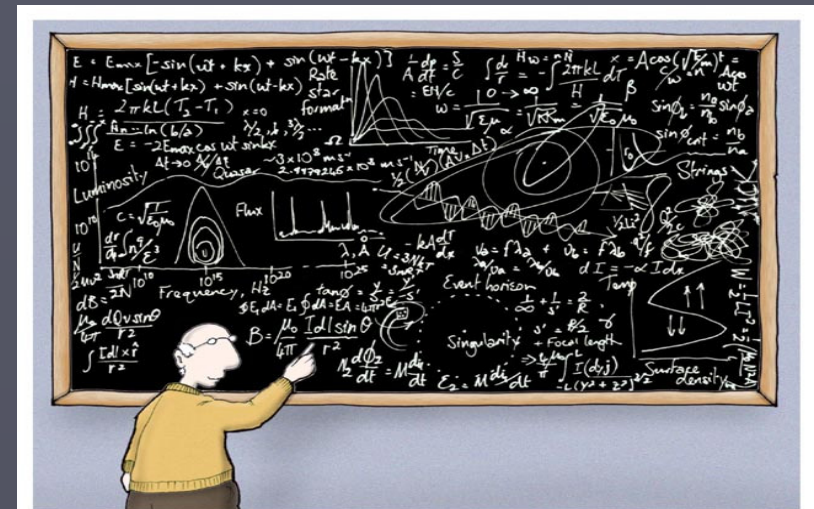
Moodle actions available



So try it out. The demo is out there for you!

Challenges to tackle

1. Lack of mobile standards ([html5 on the rise](#) with [W3C mobile web initiative](#))
2. Lack of interoperability of the mobile programs
3. Relatively high investment cost: mobile devices, phone service fee, mobile IT help desk for technical problems
4. Connectivity not assured and different per region
5. Need more mobile theory research to really get the most out of the mobile possibilities
6. Native apps => different approaches => time consuming (SDK's)
7. Augmented mobile learning is tough for limited budgets, but delivers more interactivity
8. Real time feedback or content/context pick-up
9. Time to find creative solutions
10. And the many challenges we heard here ...



Astrophysics made simple

(cartoon by Nick D Kim, [nearingzero.net](#))

Actions taken (later reading)

The actions we took were multiple, let me list 7:

1. We looked at the latest mobile phones supported by the national telecom companies, and we compared their functionalities. These functionalities had to enable reading comfort; they had to permit installing certain applications (for picture exchange, keeping connected with peers). The devices needed to have multimedia possibilities as we aimed to address different learner skills (text, audio, video). The devices also needed to have enough memory to enable big multimedia files to be stored on them. Synchronization with computers was necessary to allow cheaper downloading of new clinical modules. And last but not least, because we were aiming to add mobile social media, these media needed to be accessible by the mobile devices.
2. After purchasing the devices we started to compare mobile social media. Those media that could be accessed with both devices, and that offered a mobile design were chosen.
3. It was deemed necessary to use a mobile platform on which to store all the modules. So we started to look for mobile platforms that were both cheap and accessible. Mobile Moodle was chosen, as it offered the surplus of enabling ubiquitous learning in future projects, and because both institutes were using Moodle already as a learning platform.
4. At the same time content was being redeveloped: getting interactivity going, delivering both static (text) and multimedia content to cater to a variety of learner types, animations were made for patient/doctor conversation simulations.
5. To enable easy podcast downloads, we started using iTunes for education.
6. A facebook page was set-up to allow easy peer-to-peer information exchange.
7. Training was given to the participants (2 days, 1 day per type of mobile device)

Tools used (later reference)

- ▶ [Skype](#) and [facebook](#) for p2p knowledge exchange
- ▶ [Moviestorm](#) & [iClone](#) for animations
- ▶ [Screenflow](#) and [iMovie](#) for multimedia files
- ▶ RSS, podcast and [iTunes \(see examples\)](#) for retrieving material
- ▶ Online mobile survey software: [surveygizmo](#)
- ▶ [MLE](#) and [iPhone.moodle.com.au](#)

Not used here, but very useful

- ▶ Great tool for offline mobile data gathering:
[Survey-To-Go](#) we use it in field research in non-connected areas (synchronizable with computers, works offline and waits until it can transfer data).



Acknowledgements

This work is a result of the collaboration between the
eLearning teams of
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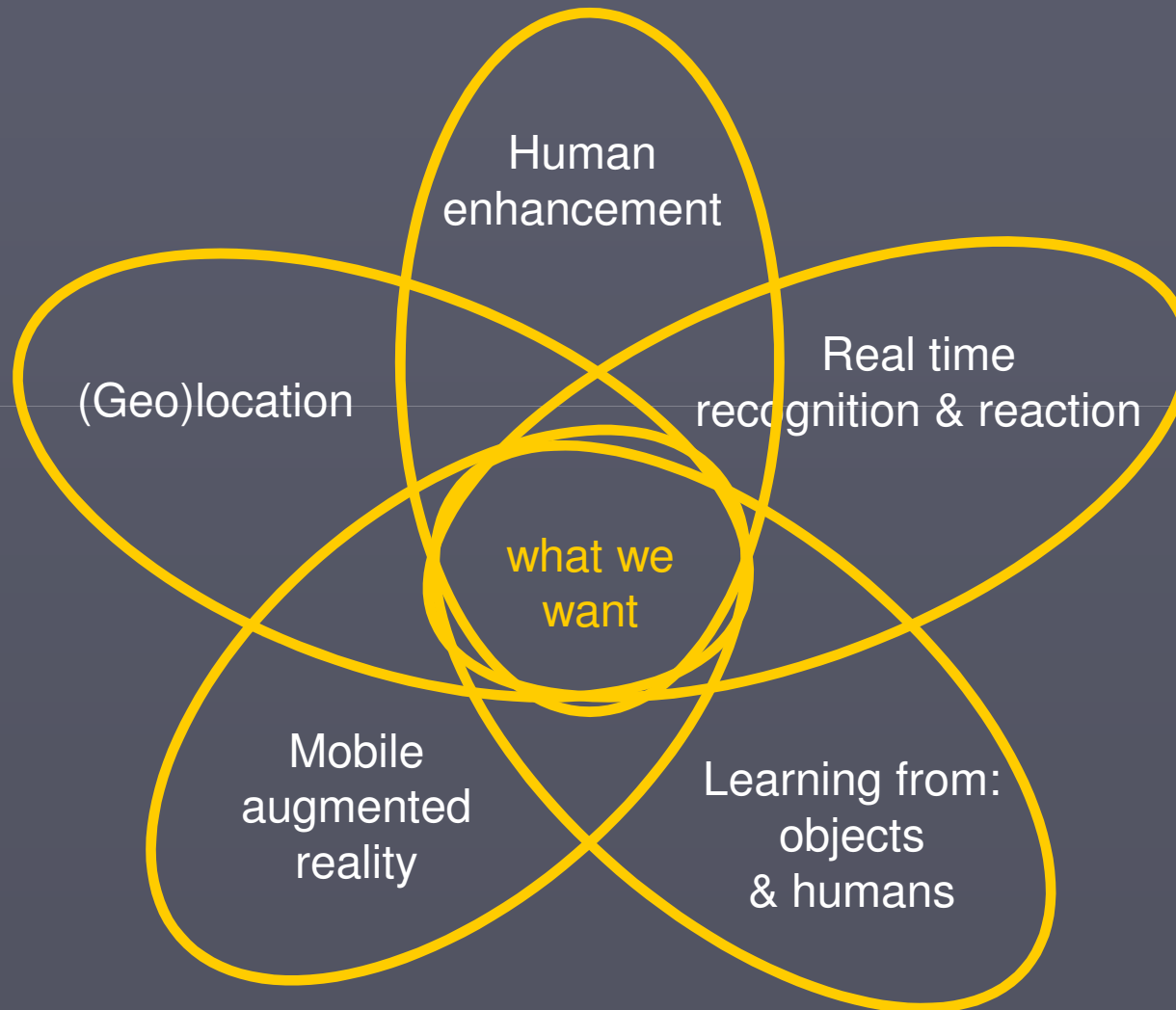
B. Castillo Llaque, L. Fucay, C. Kiyan, D. Iglesias, V. Suarez, J. Echevarria Z., E.
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IMU device challenge

the Gift Distribution



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